

THERMAL SPRING ANALYSIS REPORT

English translation of the Japanese original • Analysis No. E2403030

1. Applicant for the Thermal Spring Analysis	Name: [WITHHELD] Address: [PERSONAL ADDRESS WITHHELD]	2. Spring Name and Location of Discharge	Nachi Onsen No. 1 296-1 Kawase, Nachikatsuura Town, Higashimuro District, Wakayama Prefecture
3. Survey and Test Results at the Spring Source		4. Laboratory Test Results	
(1) Survey and testing organization	Wakayama Prefectural Pharmaceutical Association Pharmaceutical and Public Health Testing Center — Takashi Sako	(1) Tester	Wakayama Prefectural Pharmaceutical Association Pharmaceutical and Public Health Testing Center — Takashi Sako
(2) Date of survey and testing	March 1, 2024	(2) Date analysis completed	March 14, 2024
(3) Spring temperature	33.0 °C (ambient temperature at the time of survey: 12.0 °C)	(3) Organoleptic examination	Colorless and transparent; very faint hydrogen sulfide odor; faint sulfur taste
(4) Discharge rate	Unable to measure (self-flowing from a drilled well)	(4) Density	0.9996 g/cm ³
(5) Organoleptic examination	Colorless and transparent; faint hydrogen sulfide odor; faint sulfur taste	(5) pH	9.3
(6) pH	9.1	(6) Evaporation residue	0.209 g/kg

5. Components, Amounts and Composition per 1 kg of Sample

Cation	Content (mg)	Equivalent (mval)	Ratio (mval%)
Hydrogen ion H ⁺	<0.1	—	—
Sodium ion Na ⁺	72.7	3.16	91.59
Potassium ion K ⁺	0.7	0.02	0.58
Magnesium ion Mg ²⁺	<0.1	—	—
Calcium ion Ca ²⁺	5.4	0.27	7.83
Manganese ion Mn ²⁺	<0.1	—	—
Total iron Fe ²⁺ + Fe ³⁺	<0.1	—	—
Aluminum ion Al ³⁺	<0.1	—	—
Total cations	78.8	3.45	100.00

Anion	Content (mg)	Equivalent (mval)	Ratio (mval%)
Fluoride ion F ⁻	6.8	0.36	9.52
Chloride ion Cl ⁻	87.3	2.46	65.08
Hydroxide ion OH ⁻	<0.1	—	—
Hydrosulfide ion HS ⁻	0.7	0.02	0.53
Thiosulfate ion S ₂ O ₃ ²⁻	<0.1	—	—
Sulfate ion SO ₄ ²⁻	17.2	0.36	9.52
Bicarbonate ion HCO ₃ ⁻	14.1	0.23	6.08
Carbonate ion CO ₃ ²⁻	10.4	0.35	9.26
Metasilicate ion HSiO ₃ ⁻	<0.1	—	—
Metaborate ion BO ₂ ⁻	<0.1	—	—
Total anions	136.6	3.78	100.00

Undissociated component	Formula	Content (mg)	Equivalent (mmol)
Metasilicic acid	H ₂ SiO ₃	26.8	0.34
Metaboric acid	HBO ₂	1.4	0.03
Total undissociated components		28.2	0.37

Dissolved gaseous component	Formula	Content (mg)	Equivalent (mmol)
Carbon dioxide	CO ₂	<0.1	—
Hydrogen sulfide	H ₂ S	<0.1	—
Total dissolved gaseous components		—	—

(5) Total sulfur: 0.7 mg/kg
(6) Dissolved substances (excluding gaseous components): 0.244 g/kg
(7) Total constituents: 0.244 g/kg
(8) Other trace constituents (mg):
Copper ion Cu²⁺ <0.01; Total mercury Hg <0.0005
Lead ion Pb²⁺ <0.05; Cadmium Cd <0.05
Total arsenic As <0.001

6. Spring Quality	Simple alkaline thermal spring (hypotonic, alkaline, low-temperature spring)
7. Indications, contraindications, etc.	As stated in the appended Hot Spring Analysis Report (Bathing Use).
Registered Analysis Institution	Wakayama Prefecture No. 2 — Wakayama Prefectural Pharmaceutical Association. Chairman: Toshikazu Inaba.

Date shown on the original: March 18, 2024

HOT SPRING ANALYSIS REPORT — APPENDIX (BATHING USE)

English translation of the Japanese original • Analysis No. E2403030

Applicant for the Thermal Spring Analysis	Name: [WITHHELD] Address: [PERSONAL ADDRESS WITHHELD]
Spring name and location of discharge	Nachi Onsen No. 1 296-1 Kawase, Nachikatsuura Town, Higashimuro District, Wakayama Prefecture
Spring quality	Simple alkaline thermal spring (hypotonic, alkaline, low-temperature spring)

The contraindications and indications for therapeutic springs, based on the spring quality classification, are as follows according to the notification of the Director-General of the Nature Conservation Bureau, Ministry of the Environment, dated July 1, 2014 (Kanjisoho No. 1407012).

BATHING CONTRAINDICATIONS

General contraindications

Active disease (especially when fever is present); active tuberculosis; advanced malignant tumors; marked physical debility such as severe anemia; severe heart or lung disease causing shortness of breath after slight exertion; severe kidney disease accompanied by edema; gastrointestinal bleeding; visible bleeding; and acute exacerbation of chronic disease.

Contraindications by spring quality

None applicable.

BATHING INDICATIONS

General indications

Chronic pain or stiffness of the muscles or joints (e.g., rheumatoid arthritis, osteoarthritis, low back pain, neuralgia, frozen shoulder, bruises, sprains, etc., in chronic stages); muscle stiffness associated with motor paralysis; sensitivity to cold; impaired peripheral circulation; decreased gastrointestinal function (such as stomach heaviness or accumulation of intestinal gas); mild hypertension; impaired glucose tolerance (diabetes mellitus); mild hypercholesterolemia; mild asthma or pulmonary emphysema; pain of unspecified origin; various symptoms caused by stress; recovery after illness; recovery from fatigue; and promotion of health.

Indications by spring quality

Autonomic nervous system instability; insomnia; depressive state.

PRECAUTIONS FOR BATHING

Bathing in a hot spring should be carried out while observing the following precautions.

1. Before bathing

- (a) Avoid bathing immediately before or after meals and after drinking alcohol. In particular, avoid bathing while intoxicated.
- (b) Rest the body when excessively fatigued.
- (c) Rest the body for about 30 minutes after exercise.
- (d) Elderly people, children, and persons with physical disabilities are advised to avoid bathing alone.
- (e) Before entering the tub, pour water over the hands and feet to acclimate the body to the temperature, and rinse the body.
- (f) When bathing, particularly immediately after waking, replenish fluids beforehand by drinking approximately one cup of water to avoid dehydration.

2. How to bathe

- (a) Bathing temperature: Elderly people, people with hypertension or heart disease, and people who have experienced a stroke should avoid high-temperature bathing at 42 °C or above.
- (b) Bathing method: For people with reduced cardiopulmonary function, half-body bathing or partial bathing is preferable to full-body bathing.
- (c) Bathing frequency: Begin with 1–2 baths per day; after becoming accustomed to bathing, this may be increased to 2–3 times per day.
- (d) Bathing time: Depending on the bathing temperature, begin with about 3–10 minutes per bath; after becoming accustomed to it, this may be extended to about 15–20 minutes.

3. During bathing

- (a) Except during exercise bathing, generally bathe quietly, moving the arms and legs only lightly.
- (b) When getting out of the tub, do so slowly to avoid lightheadedness.
- (c) If dizziness occurs or you feel unwell, ask someone nearby for help, keep your head low while slowly getting out of the tub, then lie down and wait for recovery.

4. After bathing

- (a) Do not rinse hot-spring constituents adhering to the body with warm water; wipe off the water with a towel, get dressed, keep warm, and rest for about 30 minutes. (However, people with sensitive skin, or when using a strongly stimulating spring quality such as an acidic or sulfur spring, or when chlorine disinfection is used as necessary, should rinse the hot-spring constituents off with warm water.)
- (b) Drink approximately one cup of water to avoid dehydration.

5. Hot-spring reaction (“Yuatari”)

Approximately 3 days to 1 week after beginning hot-spring treatment, symptoms such as malaise, insomnia, digestive symptoms, or dermatitis may occur. While such symptoms are present, stop bathing or reduce the frequency of bathing and wait for recovery from these symptoms.

6. Other

Do not put towels into the bath to maintain the cleanliness of the bath water.

Note: This appendix is intended to serve as reference material required for the posting prescribed under Article 18 of the Hot Springs Act.

Date shown on the original: March 18, 2024